

Review on Harmonic Reduction and Power Quality Improvement by using DPFC

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Abstract: *A new component within the flexible ac-transmission system (FACTS) family, called distributed power-flow controller (DPFC). The DPFC is derived from the unified power-flow controller (UPFC). The DPFC can be considered as a UPFC with an eliminated common dc link. The active power exchange between the shunt and series converters, which is through the common dc link in the UPFC, is now through the transmission lines at the third-harmonic frequency. The DPFC employs the distributed FACTS (D-FACTS) concept, which is to use multiple small-size single-phase converters instead of the one large-size three-phase series converter in the UPFC. The large number of series converters provides redundancy, thereby increasing the system reliability. As the D-FACTS converters are single-phase and floating with respect to the ground, there is no high-voltage isolation required between the phases. Accordingly, the cost of the DPFC system is lower than the UPFC. The DPFC has the same control capability as the UPFC, which comprises the adjustment of the line impedance, the transmission angle, and the bus voltage.*

Keywords: DPFC, UPFC, FACTS

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